CLAIM AMENDMENTS

1. (Currently amended) A chemical monolayer construction, said construction comprising:

(a) a substrate having a contact surface, wherein said contact surface is substantially devoid of dimers oriented in a substantially identical direction; and

(b) a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate, wherein said molecular units are attached to said substrate so as to be strongly coupled electronically to said substrate and wherein said molecular units have an average length, said contact surface of said substrate has a roughness value that is substantially less than or equal to said average length of said molecular units.

2. (Original) A chemical monolayer construction according to claim 1 wherein said substantially parallel molecular units are of substantially the same lengths.

3. (Original) A chemical monolayer construction according to claim 1 wherein said substantially parallel molecular units comprise at least two types of molecular units that are of different lengths.

4. (Original) A chemical monolayer construction according to claim 1 wherein said substrate comprises electrically conductive carbon.

5. (Original) A chemical monolayer construction according to claim 1 wherein said substrate consists essentially of electrically conductive carbon.

6. (Original) A chemical monolayer construction according to claim 1 wherein said substrate consists essentially of pyrolyzed conductive carbon.

7. (Original) A chemical monolayer construction according to claim 1 additionally comprising a source of electrical current supplied to said substrate so as to be conducted by said plurality of substantially parallel molecular units.

8. (Currently amended) A chemical monolayer construction, said construction comprising:

(a) a substrate having a contact surface, wherein said contact surface is substantially devoid of dimers oriented in a substantially identical direction; and

(b) a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate, wherein said molecular units are attached to said substrate through a conjugated bond.

9. (Original) A chemical monolayer construction according to claim 8 wherein said substrate comprises conductive carbon.

10. (Original) A chemical monolayer construction according to claim 8 wherein said substrate consists essentially of conductive carbon.

11. (Original) A chemical monolayer construction according to claim 8 wherein said substrate consists essentially of pyrolyzed conductive carbon.

12. (Original) A chemical monolayer construction according to claim 8 wherein said molecular units have an average length, said contact surface of said substrate has a roughness value that is substantially less than or equal to said average length of said molecular units.

13. (Original) A chemical monolayer construction according to claim 8 wherein said substantially parallel molecular units that are of substantially the same length.

14. (Original) A chemical monolayer construction according to claim 8 wherein said substantially parallel molecular units comprise at least two types of molecular units of different lengths.

15. (Original) A chemical monolayer construction according to claim 8 wherein said roughness value is less than 200 Angstroms.

16. (Original) A chemical monolayer construction according to claim 8 wherein said roughness value is less than 20 Angstroms.

17. (Original) A chemical monolayer construction according to claim 8 wherein said roughness value is less than 5 Angstroms.

18. (Original) A chemical monolayer construction according to claim 8 additionally comprising a source of electrical current supplied to said substrate so as to be conducted by said plurality of substantially parallel molecular units.

44. (Currently amended) A method of producing a chemical monolayer construction, said method comprising:

(a) providing a substrate having a contact surface, wherein said contact surface is substantially devoid of dimers oriented in a substantially identical direction; and

(b) reacting a chemical precursor bearing molecular units with said substrate so as to form a monolayer of a plurality of substantially parallel molecular units attached to said contact surface of said substrate, wherein said molecular units are attached to said substrate so as to be strongly coupled electronically to said substrate and wherein said molecular units have an average length, said contact surface of said substrate has a roughness value substantially less than or equal to said average length of said molecular units.

45. (Original) A method of producing a chemical monolayer construction according to claim 44 wherein said wherein said molecular units become attached to said substrate through a conjugated bond.

46. (Original) A method of producing a chemical monolayer construction according to claim 44 wherein said substrate comprises conductive carbon.